



SIMATIC ET 200SP, analog input module, AI Energy Meter CT ST, for 1A or 5A current transformer, suitable for BU type U0, channel diagnostics

| General information | |
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| Product type designation | AI Energy Meter CT ST |
| Firmware version | V8.0 |
| <ul style="list-style-type: none"> FW update possible | Yes |
| usable BaseUnits | BU type U0 |
| Color code for module-specific color identification plate | CC20 |
| Supported power supply systems | TT, TN, IT |
| Product function | |
| <ul style="list-style-type: none"> Voltage measurement <ul style="list-style-type: none"> — without voltage transformer — with voltage transformer Current measurement <ul style="list-style-type: none"> — without current transformer — with current transformer — With Rogowski coil — With current-voltage-converter Energy measurement Frequency measurement Power measurement Active power measurement Reactive power measurement Power factor measurement Active factor measurement Reactive power compensation Line analysis I&M data Isochronous mode | Yes Yes Yes Yes; max. 3 + neutral conductor No Yes; 1 A or 5 A current transformer No No Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes No Yes; I&M0 to I&M3 No |
| Engineering with | |
| <ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision | STEP 7 V16 or higher with HSP Configurable via GSD file One GSD file each, Revision 3 and 5 and higher V2.3 |
| Operating mode | |
| <ul style="list-style-type: none"> Switching between operating modes in RUN Cyclic measured value access Acyclic measured value access Fixed measured value sets | Yes; For module version 32 I/20 Q, it is possible to dynamically switch between 25 user data variants, 23 of which are pre-defined and 2 of which can be defined by the specific user Yes Yes Yes |

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| • Freely definable measured value sets | Yes; For cyclic and acyclic measured value access |
| CiR - Configuration in RUN | |
| Reparameterization possible in RUN | Yes |
| Calibration possible in RUN | Yes |
| Installation type/mounting | |
| Mounting position | any |
| Supply voltage | |
| Rated value (DC) | 24 V |
| permissible range, lower limit (DC) | 19.2 V |
| permissible range, upper limit (DC) | 28.8 V |
| Input current | |
| Current consumption (rated value) | 12.5 mA |
| Current consumption, max. | 17 mA |
| Power loss | |
| Power loss, typ. | 1 W; 3x 5 A input current, 3x 230 V AC |
| Address area | |
| Address space per module | |
| • Inputs | 256 byte |
| • Outputs | 20 byte |
| Hardware configuration | |
| Automatic encoding | Yes |
| • Mechanical coding element | Yes |
| • Type of mechanical coding element | type C |
| Selection of BaseUnit for connection variants | |
| • 2-wire connection | BU type U0 |
| Time of day | |
| Operating hours counter | |
| • present | Yes |
| Analog inputs | |
| Cycle time (all channels), typ. | 50 ms; Time for consistent update of all measured and calculated values (cyclic und acyclic data) |
| Cable length | |
| • shielded, max. | 200 m |
| • unshielded, max. | 200 m |
| Analog value generation for the inputs | |
| Sampling frequency, max. | 2 048 kHz |
| Interrupts/diagnostics/status information | |
| Alarms | |
| • Diagnostic alarm | Yes |
| • Limit value alarm | Yes |
| • Hardware interrupt | Yes; Monitoring of up to 16 freely selectable process values (exceeding or undershooting of value) |
| Diagnoses | |
| • Supply voltage | Yes |
| • Hardware interrupt lost | Yes |
| • Parameter assignment error | Yes |
| • Module fault | Yes |
| • Channel not available | Yes |
| • Overflow/underflow | Yes |
| • Overload current | Yes |
| Diagnostics indication LED | |
| • Monitoring of the supply voltage (PWR-LED) | Yes |
| • Channel status display | Yes; green LED |
| • for channel diagnostics | Yes; red Fn LED |
| • for module diagnostics | Yes; green/red DIAG LED |
| Integrated Functions | |
| Measuring functions | |
| • Measuring procedure for voltage measurement | TRMS |
| • Measuring procedure for current measurement | TRMS |

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| • Type of measured value acquisition | seamless |
| • Curve shape of voltage | Sinusoidal or distorted |
| • Buffering of measured variables | Yes |
| • Parameter length | 128 byte |
| • Bandwidth of measured value acquisition | 3.2 kHz; Harmonics: 63 / 50 Hz, 52 / 60 Hz |
| Measuring range | |
| — Frequency measurement, min. | 40 Hz |
| — Frequency measurement, max. | 70 Hz |
| Measuring inputs for voltage | |
| — Measurable line voltage between phase and neutral conductor | 277 V |
| — Measurable line voltage between the line conductors | 480 V |
| — Measurable line voltage between phase and neutral conductor, min. | 3 V |
| — Measurable line voltage between phase and neutral conductor, max. | 300 V |
| — Measurable line voltage between the line conductors, min. | 6 V |
| — Measurable line voltage between the line conductors, max. | 519 V |
| — Internal resistance line conductor and neutral conductor | 1.5 MΩ |
| — Power consumption per phase | 60 mW; 300 V AC |
| — Impulse voltage resistance 1,2/50μs | 2.5 kV |
| — Measurement category for voltage measurement in accordance with IEC 61010-2-030 | CAT II |
| Measuring inputs for current | |
| — measurable relative current (AC), min. | 1 %; Relative to measuring range; 1 A, 5 A |
| — measurable relative current (AC), max. | 100 %; Relative to the secondary rated current 5 A |
| — Continuous current with AC, maximum permissible | 5 A |
| — Apparent power consumption per phase for measuring range 5 A | 0.6 VA |
| — Rated value short-time withstand current restricted to 1 s | 100 A |
| — Input resistance measuring range 0 to 5 A | 25 mΩ; At the terminal |
| — Surge strength | 10 A; for 1 minute |
| — Zero point suppression | 0 ... 20%, referred to the nominal current |
| Accuracy class according to IEC 61557-12 | |
| — Measured variable voltage | 0,2 |
| — Measured variable current | 0,2 |
| — Measured variable apparent power | 0.5 |
| — Measured variable active power | 0.5 |
| — Measured variable reactive power | 1 |
| — Measured variable power factor | 0.5 |
| — Measured variable active energy | 0.5 |
| — Measured variable reactive energy | 1 |
| — Measured variable neutral current | 0,2 |
| — Measured variable phase angle | ±0.5 °; not covered by IEC 61557-12 |
| — Measured variable frequency | 0.05; only valid for the permissible voltage measuring range |
| Potential separation | |
| Potential separation channels | |
| • between the channels | No |
| • between the channels and backplane bus | Yes |
| • Between the channels and load voltage L+ | Yes; Including FE |
| Isolation | |
| Isolation tested with | Between channels and backplane bus, 24 V supply: Routine test, 1 920 V AC, 2 s; between backplane bus and 24 V supply: Type test, 707 V DC |
| Ambient conditions | |
| Ambient temperature during operation | |

- horizontal installation, min. -30 °C
- horizontal installation, max. 60 °C
- vertical installation, min. -30 °C
- vertical installation, max. 50 °C

Altitude during operation relating to sea level

- Installation altitude above sea level, max. 3 000 m; Restrictions for installation altitudes > 2 000 m, see manual

Dimensions

| | |
|--------|-------|
| Width | 20 mm |
| Height | 73 mm |
| Depth | 58 mm |

Weights

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|-----------------|------|
| Weight, approx. | 45 g |
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Other

Data for selecting a voltage transformer

- Secondary side, max. 300 V

Data for selecting a current transformer

- Burden power current transformer x/1A, min. As a function of cable length and cross section, see device manual
- Burden power current transformer x/5A, min. As a function of cable length and cross section, see device manual

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